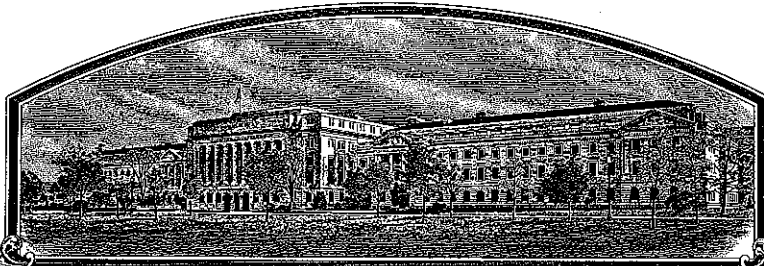


No.

200400052



# THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

General Mills Operations, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. IN THE UNITED STATES SEED OF THIS VARIETY

(1) SHALL BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMERICAL GENERATIONS SPECIFIED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

WHEAT, CLUB

'MEL'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this twenty-sixth day of July, in the year two thousand and five.

Attest:

  
Commissioner  
Plant Variety Protection Office  
Agricultural Marketing Service


  
Secretary of Agriculture



U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICEAPPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE  
(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF OWNER <b>Northwest Plant Breeding General Mills Operations, Inc.</b>		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME <b>CDH01</b>		3. VARIETY NAME <b>'MEL'</b>	
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country) <b>2001 Country Club Rd. Pullman, WA 99163 Number ONE General Mills Boulevard Minneapolis MN 55426</b>		5. TELEPHONE (include area code) <b>509-334-4404</b>		<b>FOR OFFICIAL USE ONLY</b> PVPO NUMBER <b>2004 00 052</b> FILING DATE <b>12/19/2003</b>	
		6. FAX (include area code) <b>509-334-5320</b>			
7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.) <b>Small Corporation</b>		8. IF INCORPORATED, GIVE STATE OF INCORPORATION <b>Washington State</b>		9. DATE OF INCORPORATION <b>1998</b>	
10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. (First person listed will receive all papers)				FILING AND EXAMINATION FEES: \$2705 \$947 DATE <b>10/7/03</b> CERTIFICATION FEE: \$432.00 DATE <b>02/14/2005</b>	
<b>Dr. Calvin F. Konzak</b> <b>2001 Country Club</b> <b>Pullman, Washington 99163</b> <b>Ph 5-5-2005</b>					
11. TELEPHONE (include area code) <b>509-334-4404</b> <b>763-764-4158</b>		12. FAX (include area code) <b>509-334-5320</b> <b>763-764-2368</b>		13. E-MAIL <b>annette.fawley@genmills.com</b> <b>npb@completebbs.com</b>	
14. CROP KIND (Common Name) <b>Club Wheat</b>		15. GENUS AND SPECIES NAME OF CROP <b>Triticum aestivum compactum</b>		16. FAMILY NAME (Botanical) <b>Gramineae</b>	
17. IS THE VARIETY A FIRST GENERATION HYBRID? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		18. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse)			
19. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? See Section 83(a) of the Plant Variety Protection Act <input checked="" type="checkbox"/> YES (If "yes", answer items 20 and 21 below) <input type="checkbox"/> NO (If "no", go to item 22)		20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES? IF YES, WHICH CLASSES? <input checked="" type="checkbox"/> FOUNDATION <input checked="" type="checkbox"/> REGISTERED <input checked="" type="checkbox"/> CERTIFIED			
21. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? IF YES, SPECIFY THE <input checked="" type="checkbox"/> FOUNDATION <input checked="" type="checkbox"/> REGISTERED <input checked="" type="checkbox"/> CERTIFIED NUMBER 1,2,3, etc. (If additional explanation is necessary, please use the space indicated on the reverse.)		22. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. (Please use space indicated on reverse.)			
23. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT (PLANT BREEDER'S RIGHT OR PATENT)? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. (Please use space indicated on reverse.)		24. The owners declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate. The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act. Owner(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.			
SIGNATURE OF OWNER 		SIGNATURE OF OWNER			
NAME (Please print or type) <b>Dr. Calvin F. Konzak</b>		NAME (Please print or type)			
CAPACITY OR TITLE <b>President/CEO</b>		DATE <b>October 2, 2003</b>		CAPACITY OR TITLE <b></b>	
				DATE <b></b>	

## INSTRUCTIONS

**GENERAL:** To be effectively filed with the Plant Variety Protection Office (PVPO), **ALL** of the following items must be **received** in the PVPO: (1) Completed application form signed by the owner; (2) completed exhibits A, B, C, E; (3) for a seed reproduced variety at least 2,500 viable untreated seeds, for a hybrid variety at least 2,500 untreated seeds of each line necessary to reproduce the variety, or for tuber reproduced varieties verification that a viable (in the sense that it will reproduce an entire plant) tissue culture will be deposited and maintained in an approved public repository; (4) check drawn on a U.S. bank for \$2,705 (\$320 filing fee and \$2,385 examination fee), payable to "Treasurer of the United States" (See Section 97.6 of the Regulations and Rules of Practice.) Partial applications will be held in the PVPO for not more than 90 days, then returned to the applicant as unfilled. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 401, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. Retain one copy for your files. All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. **DO NOT** use masking materials to make corrections. If a certificate is allowed, you will be requested to send a check payable to "Treasurer of the United States" in the amount of \$320 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

## Plant Variety Protection Office

Telephone: (301) 504-5518

FAX: (301) 504-5291

Homepage: <http://www.ams.usda.gov/science/pvpo/pvp.htm>

## ITEM

- 18a. Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method;  
(2) the details of subsequent stages of selection and multiplication;  
(3) evidence of uniformity and stability; and  
(4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified
- 18b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:  
(1) identify these varieties and state all differences objectively;  
(2) attach statistical data for characters expressed numerically and demonstrate that these are clear differences; and  
(3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.
- 18c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.
- 18d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, etc.
- 18e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.
19. If "Yes" is specified (*seed of this variety be sold by variety name only, as a class of certified seed*), the applicant **MAY NOT** reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. (See *Regulations and Rules of Practice*, Section 97.103).
22. See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.
23. See Section 55 of the Act for instructions on claiming the benefit of an earlier filing date.

**21. CONTINUED FROM FRONT** (Please provide a statement as to the limitation and sequence of generations that may be certified.)

~~**22. CONTINUED FROM FRONT** (Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)~~

No seed has been sold.

**23. CONTINUED FROM FRONT** (Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right or Patent).)

was derived from induced mutation from the publicly released variety 'Coda'.

Patent of Herbicide Tolerance Gene, BASF, US PCT/US02/21753

**NOTES:** It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative during the life of the application/certificate. There is no charge for filing a change of address. The fee for filing a change of ownership or assignment or any modification of owner's name is specified in Section 97.175 of the regulations. (See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of the Regulations and Rules of Practice.)

To avoid conflict with other variety names in use, the applicant must check the appropriate recognized authority. For example, for agricultural and vegetable crops, contact: Seed Branch, AMS, USDA, Room 213, Building 306, Beltsville Agricultural Research Center-East, Beltsville, MD 20705. Telephone: (301) 504-8089. <http://www.ams.usda.gov/lsg/seed.htm>

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 3.0 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, or marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call 202-720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

S&T-470 (07-01) designed by the Plant Variety Protection Office with WordPerfect 9.0. Replaces STD-470 (04-01) which is obsolete.

## Exhibit A

Genealogy: MEL was derived by induced mutation from the publicly released cultivar, CODA (PI 594372), a Soft White Winter Club Wheat, *Triticum aestivum* L. ssp *compactum* cultivar, developed by the USDA-ARS, Pullman, WA, and released cooperatively with the Agricultural Research Center, Pullman, WA; the Idaho Agricultural Experiment Station, Moscow, Idaho; the Oregon Agricultural Experiment Station, Corvallis, OR, and release as a public cultivar in 1998. Coda was developed from the cross 'Tres' / 'Madsen' // Tres made in 1991 by Dr. R.E. Allan, USDA-ARS stationed in Pullman, WA. 99163. Seed of Coda was treated with mutagens EMS (Ethylmethane sulfonate, and Sodium Azide, sequentially US Patent No.6,696,294B1. The M1 (treated generation) was field grown near Pullman, WA, in 1998-99, and seedlings of the M2 population was sprayed with Imazamox herbicide in summer 2000, after which herbicide tolerant candidate mutants were selected and transferred to a growth chamber for vernalization, and afterward to a greenhouse for growing to maturity. In fall 2000, M3 progeny from candidate mutants were planted in greenhouse seed cups for spraying with herbicide to confirm the herbicide tolerances. Two M3 progenies showed homozgosity for herbicide tolerance, and seed harvested from single plants, selected from the M3 screened population were field sown in fall 2000 for seed increases. In spring 2001, the M4 progenies were sprayed with 1, 2 and 4 X (5gr ai/A) expected field doses of herbicide, and scored for tolerance. Mutants 1 and 2, among the tolerance mutants showed confirmed tolerance to the herbicide, thus sublines, derived from single plant increases of Mutants 1 and 2, were harvested separately, and the increases were sprayed with herbicide in spring 2002, and field trial evaluations, as well as gene sequence analyses were conducted by BASF, of the several Mutant 1 and Mutant 2 sublines. The herbicide tolerance of Mutants 1 and Mutant 2 sublines were confirmed, and the lines were harvested individually in fall 2002 for Preliminary (first stage) Breeder Seed. However, from evaluations conducted cooperatively with BASF, it appeared that Mutant1 was superior to mutant 2, consequently, single spike

selections were made also from all Mutant 1 sublines for use in developing new breeder seed stocks from individual spike increases of each subline, to become components of a blend for the new variety. The first stage individual Breeder Seed lines were used as stock for production of further Breeder Seed and for Foundation Seed production, while the selected single spike samples from each line were processed separately to provide for the individual subline stock increases for future Breeder Seed. As the individual Preliminary Breeder Seed lines were also entered into field trails to further evaluate their herbicide tolerance and yield performance, the final Breeder and Foundation Seed stocks are comprised of a blend of all sub-sublines showing the highest tolerance and yield performance. The Breeder Seed sublines were sown in fall 2002 by NPB licensee General Mills Operations near Blackfoot Idaho. New Breeder seed stock and Foundation Seed was harvested from the individual M1 subline increases in fall 2003. A portion of a preliminary blend made up of a subset of the tolerant Breeder Seed sublines, that were grown at another increase location, was also sown at Blackfoot. Foundation Seed from that blended seed lot was downgraded to Certified Seed, and made available for a first stage sale to selected farmers in the PNW. Because the single spike selections for the follow-up Breeder Seed increases were not sown in fall 2002, sample lots from each of the sublines growing in Blackfoot, ID, were harvested, to serve as second season Breeder Seed, after inspection and approval by the Breeder. The single spike lines derived from the Blackfoot, ID samples of each subline for the blend were sown in fall 2003 at an irrigated site near Warden, WA. The lines will be observed and rogued, if necessary, by the breeder, then harvested as single rows, the seed from which will be sown in single plots for increase of breeder seed stock, except that samples of each line will be retained in storage to serve as stock for new plots the following season to reproduce the individual sub-subline components of the variety.

MEL is in all respects similar to Coda, a public cultivar, from which it was derived, except for the presence of allele of an induced mutant of the Als2/AHAS2 (Acetolactate synthase/acetohydroxyacid synthase) gene allele, for

which US Patent 10, 486,506 has been issued to C. F. Konzak, and assigned to Northwest Plant Breeding Co., 2001, Country Club Rd., Pullman, WA99163. Via Contract with NPB, BASF will have controlling rights to the induced mutant alleles, intended to assure the use of the BEYOND™ herbicide on wheats carrying those mutant alleles.

Addendum to 'Mel' Exhibit A:

'Mel' is uniform and stable; and has been observed as such, for at least 10 generations. As I recall, there are few variants, largely variations in plant height which are not themselves reproducible as such. There is thus a minor level of variation that is consistent within the variety, and within the variety from which it was derived. I have to estimate that there are about 0.5 to 1 percent of plant height variants in 'Mel', or about the same frequency as in 'Coda', its 'parent'.

EXHIBIT B. Statement of distinctness:

MEL is an 'essentially-derived variety, **distinct from Coda in only one way**: It carries a **high level of tolerance the BASF herbicide BEYOND™**, an imidazolinone chemical which will kill Coda, and non-tolerant cereals, as well as nearly all grassy weed species. Otherwise, MEL is essentially identical to Coda, although Coda was made up of a blend of lines, which differed in their reaction to stem rust. The induced mutant that became MEL derives from a single plant selection, and thus represents only one of the components present in Coda. Fortunately, the component represented is the one that is uniformly resistant to stem rust, compared to the heterogeneous character of the rust resistance of the than the commercial Coda variety. MEL was recognized by BASF to carry high tolerance to the BEYOND herbicide, hence the new Als2 allele it carries, may have potential for breeding new herbicide tolerant varieties. We expect that all other characteristics of MEL will be similar to the Coda parent, including resistance to *Pseudocercospora* foot rot. Its quality is expected to be the same as the commercial Coda, and it is expected that its yield potential will be essentially equal to Coda, since the seed stock is comprised of a blend of sublines with yields statistically not different from Coda. In fact, recent data compiled by the USDA Western wheat Quality Laboratory (attached herewith, as Exhibit B2, B3) confirms that the milling and baking quality properties of the cultivar, MEL, is not statistically different from those of Coda.



REPRODUCE LOCALLY. Include form number and date on all reproductions.

Form Approved - OMB No. 0581-04

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this collection of information is (0581-0035). The time required to complete this information collection is estimated to average 30 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
SCIENCE AND TECHNOLOGY  
PLANT VARIETY PROTECTION OFFICE  
BELTSVILLE, MD 20705

EXHIBIT C  
(Wheat)

OBJECTIVE DESCRIPTION OF VARIETY  
WHEAT (*Triticum* spp.)

NAME OF APPLICANT(S) Calvin Konzak	FOR OFFICIAL USE ONLY
ADDRESS (Street and No. or RD No., City, State, and Zip Code) 2001 Country Club Rd. Pullman, WA. 99163	PVPO NUMBER 2004 00 052
	VARIETY NAME 'MEL'
	TEMPORARY OR EXPERIMENTAL DESIGNATION

PLEASE READ ALL INSTRUCTIONS CAREFULLY: Place the appropriate number that describes the varietal character of this variety in the boxes below. Place a zero in the first box (e.g.  or ) when number is either 99 or less or 9 or less respectively. Data for quantitative plant characters should be based on a minimum of 100 plants. Comparative data should be determined from varieties entered in the same trial. Royal Horticultural Society or any recognized color standard may be used to determine plant colors; designate system used: Please answer all questions for your variety; lack of response may delay progress of your application.

1. KIND:

3 ☒

1=Common

2=Durum

3=Club

4=Other (SPECIFY):

mat

2. VERNALIZATION:

1=Spring

2=Winter

3=Other (SPECIFY):

3. COLEOPTILE ANTHOCYANIN:

1=Absent

2=Present

4. JUVENILE PLANT GROWTH:

1=Prostrate

2=Semi-erect

3=Erect

5. PLANT COLOR (boot stage):

1 = Yellow-Green

2 = Green

3 = Blue-Green

6. FLAG LEAF (boot stage):

1 = Erect

2 = Recurved

1 = Not Twisted

2 = Twisted

7. EAR EMERGENCE:

Number of Days Earlier Than Chukar

Number of Days Later Than Rely

## 8. ANTHOR COLOR:

☒ 1

1 = Yellow

2 = Purple

## 9. PLANT HEIGHT (from soil to top of head, excluding awns):

☒ 2 ☒ 5

cm Taller Than Chukar

☒ 2 ☒ 5

cm Shorter Than Rely

\* Relative to a PVPO-Approved Commercial Variety Grown in the Same Trial

## 10. STEM:

## A. ANTHOCYANIN

☒ 1

1 = Absent

2 = Present

## B. WAXY BLOOM

☒ 1

1 = Absent

2 = Present

## C. HAIRINESS (last internode of rachis)

☒ 1

1 = Absent

2 = Present

## D. INTERNODE (SPECIFY NUMBER)

☒ 1

1 = Hollow

2 = Semi-solid

3 = Solid

## E. PEDUNCLE

☒ 2

1 = Absent

2 = Present

☐

cm Length

## 11. HEAD (at Maturity):

## A. DENSITY

☒ 3

1 = Lax

3 = Dense

2 = Middense

## C. CURVATURE

☒ 1

1 = Erect

2 = Inclined

3 = Recurved

## B. SHAPE

☒ 4

1 = Tapering

2 = Strap

3 = Clavate

4 = Other (SPECIFY):

Club

## D. AWNEDNESS

☒ 4

1 = Awnless

2 = Apically Awnletted

3 = Awnletted

4 = Awned

## 12. GLUMES (at Maturity):

## A. COLOR

☒ 2

1 = White

2 = Tan

3 = Other (SPECIFY):

## C. BEAK

☐

1 = Obtuse

2 = Acute

3 = Acuminate

## B. SHOULDER

☐

1 = Wanting

2 = Oblique

3 = Rounded

4 = Square

5 = Elevated

6 = Apiculate

## D. LENGTH

☐

1 = Short

2 = Medium

(ca. 7mm)

(ca. 8mm)

3 = Long (ca. 9mm)

## E. WIDTH

- ☐ 1 = Narrow (ca. 3mm)    2 = Medium (ca. 3.5mm)  
☐ 3 = Wide (ca. 4mm)

## 13. SEED:

## A. SHAPE

- ☐ 1 = Ovate    2 = Oval    3 = Elliptical

## B. CHEEK

- ☐ 1 = Rounded    2 = Angular

## E. Color

- ☐ 1 = White    2 = Amber    3 = Red  
☐ 4 = OTHER (Specify)

## F. TEXTURE

- ☐ 2 1 = Hard    2 = Soft

## C. BRUSH

- ☐ 1 = Short    2 = Medium    3 = Long  
☐ 1 = Not Collared    2 = Collared

## D. CREASE

- ☐ 1 1 = Width 60% or less of Kernel  
                                  2 = Width 80% or less of Kernel  
                                  3 = Width Nearly as Wide as Kernel  
☐ 2 1 = Depth 20% or less of Kernel  
                                  2 = Depth 35% or less of Kernel  
                                  3 = Depth 50% or less of Kernel

## G. PHENOL REACTION (see instructions):

- ☐ 1 1 = Ivory    2 = Fawn  
                                  3 = Light Brown    4 = Dark Brown  
                                  5 = Black

## 14. DISEASE: (0=Not Tested; 1=Susceptible; 2=Resistant; 3=Intermediate; 4=Tolerant)

## PLEASE INDICATE THE SPECIFIC RACE OR STRAIN TESTED

- |   |  |
|---|--|
| <input type="checkbox"/> 2 Stem Rust ( <i>Puccinia graminis</i> f. sp. <i>tritici</i> ) | <input type="checkbox"/> 0 Leaf Rust ( <i>Puccinia recondita</i> f. sp. <i>tritici</i> )     |
| <input type="checkbox"/> 2 Stripe Rust ( <i>Puccinia striiformis</i> )                  | <input type="checkbox"/> 0 Loose Smut ( <i>Ustilago tritici</i> )                            |
| <input type="checkbox"/> 0 Tan Spot ( <i>Pyrenophora tritici-repentis</i> )             | <input type="checkbox"/> 0 Flag Smut ( <i>Urocystis agropyri</i> )                           |
| <input type="checkbox"/> 0 Halo Spot ( <i>Selenophoma donacis</i> )                     | <input type="checkbox"/> 0 Common Bunt ( <i>Tilletia tritici</i> or <i>T. laevis</i> )       |
| <input type="checkbox"/> 0 <i>Septoria nodorum</i> (Glume Blotch)                       | <input type="checkbox"/> 0 Dwarf Bunt ( <i>Tilletia controversa</i> )                        |
| <input type="checkbox"/> 0 <i>Septoria avenae</i> (Speckled Leaf Disease)               | <input type="checkbox"/> 0 Karnal Bunt ( <i>Tilletia indica</i> )                            |
| <input type="checkbox"/> 0 <i>Septoria tritici</i> (Speckled Leaf Blotch)               | <input type="checkbox"/> 0 Powdery Mildew ( <i>Erysiphe graminis</i> f. sp. <i>tritici</i> ) |
| <input type="checkbox"/> 0 Scab ( <i>Fusarium</i> spp.)                                 | <input type="checkbox"/> 0 "Snow Molds"  |

14. Disease (Continued) (0=Not Tested; 1=Susceptible; 2=Resistant; 3=Intermediate; 4=Tolerant)

PLEASE INDICATE THE SPECIFIC RACE OR STRAIN TESTED

- |   |   |
|---|---|
| <input type="checkbox"/> "Black Point" (Kernel Smudge)              | <input type="checkbox"/> Common Root Rot ( <i>Fusarium</i> , <i>Cochliobolus</i> and <i>Bipolaris</i> spp.) |
| <input type="checkbox"/> Barley Yellow Dwarf Virus (BYDV)           | <input type="checkbox"/> Rhizoctonia Root Rot ( <i>Rhizoctonia solani</i> )                                 |
| <input type="checkbox"/> Soilborne Mosaic Virus (SBMV)              | <input type="checkbox"/> Black Chaff ( <i>Xanthomonas campestris</i> pv. <i>translucens</i> )               |
| <input type="checkbox"/> Wheat Yellow (Spindle Streak) Mosaic Virus | <input type="checkbox"/> Bacterial Leaf Blight ( <i>Pseudomonas syringae</i> pv. <i>syringae</i> )          |
| <input type="checkbox"/> Wheat Streak Mosaic Virus (WSMV)           | <input type="checkbox"/> Other (SPECIFY)  |
| <input checked="" type="checkbox"/> Other (SPECIFY) Foot Rot        | <input type="checkbox"/> Other (SPECIFY)  |
| <input type="checkbox"/> Other (SPECIFY)                            | <input type="checkbox"/> Other (SPECIFY)  |
| <input type="checkbox"/> Other (SPECIFY)                            | <input type="checkbox"/> Other (SPECIFY)  |

15. INSECT: (0=Not Tested; 1=Susceptible; 2=Resistant; 3=Intermediate; 4=Tolerant)

PLEASE SPECIFY BIOTYPE (where needed)

- |  |  |
|--|--|
| <input type="checkbox"/> Hessian Fly ( <i>Mayetiola destructor</i> )   | <input type="checkbox"/> Other (SPECIFY) |
| <input type="checkbox"/> Stem Sawfly ( <i>Cephus</i> spp.)             | <input type="checkbox"/> Other (SPECIFY) |
| <input type="checkbox"/> Cereal Leaf Beetle ( <i>Oulema melanopa</i> ) | <input type="checkbox"/> Other (SPECIFY) |
| <input type="checkbox"/> Russian Aphid ( <i>Diuraphis noxia</i> )      | <input type="checkbox"/> Other (SPECIFY) |
| <input type="checkbox"/> Greenbug ( <i>Schizaphis graminum</i> )       | <input type="checkbox"/> Other (SPECIFY) |
| <input type="checkbox"/> Aphids  | <input type="checkbox"/> Other (SPECIFY) |

16. ADDITIONAL INFORMATION ON ANY ITEM ABOVE, OR GENERAL COMMENTS

We intend to complete tests to assure that no disease resistances inherent to Coda have been lost, including the *Pseudocercospora herpotrichoies* resistance and resistances to stripe rust and leaf rust. Stem rust resistance should be better than in regular Coda, which is heterogeneous for stem rust reaction.

**Northwest Plant Breeding**

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**From:** Doug Engle [doug\_engle@wsu.edu]  
**Sent:** Wednesday, April 28, 2004 10:29 AM  
**To:** northwestwheat@direcway.com  
**Cc:** Craig Morris



WWQL TDIFF 7  
Year.xls



WWQL TDIFF  
Mel-Coda Clearfield...

Cal,

I have attached two Excel files with data analysis we have done on Mel and Clearfirst. The wwql tdiff 7 year.xls file is the complete 7 year wrap up with everything bench marked to Stephens and Rely. Notice that the data comparison of Madsen and Coda to these are large so we have a lot of confidence in this comparison. Mel and Clearfirst have only been in the study one year. Clearfirst was in the trials for WA, OR and ID variety testing so we got a pretty good look at it (n=16). Since the data sets comparing Mel and Clearfirst to Coda and Madsen are so unbalanced I reran the analysis comparing them directly. This comparison is in the WWQL TDIFF Mel-Coda Clearfield-Madsen.xls file. The blocks in yellow are the direct comparison. The values in white are from the 7 year comparison bench marked to Rely (value 0 for all tests).

With the one year data it doesn't appear that either Mel or Clearfirst are significantly different than Coda or Madsen for quality.

Doug

5-8

As Compared to Best

T Difference Summary\*  
1997-2002 Crop Years

Soft White Club

Variety	N	Years Tested	Test Weight	NIR Hardness	Wheat Protein	Single Kernel Hardness	Kernel Weight	Break Flour Yield	Flour Yield	Flour Ash	Milling Score	Flour Protein	Mixograph Absorption	Cookie Diameter	Cake Volume
CGDIA	28	7	8.13	4.32	3.82	4.32	1.66	0.1	1.55	2.08	0.77	3.18	2.78	2.33	0
MEL	5	1	5.29	2.23	3.74	4.78	4.08	2.1	1.88	1.63	0.22	3.1	0.35	1.25	-0.29
Compared to Coda 1 year data GLM re-run															
MEL	5	1	1.73	0	1.52	1.8	2.68	2.37	-0.48	-0.65	0.41	1.82	0.55	1	2.42

U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). The information is held confidential until the certificate is issued (7 U.S.C. 2426).

## EXHIBIT E

## STATEMENT OF THE BASIS OF OWNERSHIP

1. NAME OF APPLICANT(S) <i>General Mills Operations, Inc.</i> <i>Northwest Plant Breeding</i>	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER CDH01	3. VARIETY NAME  'MEL'
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP, and Country)  2001 Country Club Rd. Pullman, WA. 99163	5. TELEPHONE (Include area code)  509-334-4404	6. FAX (Include area code)  509-334-5320
7. PVPO NUMBER  <b>2004 00 052</b>		
8. Does the applicant own all rights to the variety? Mark an "X" in the appropriate block. If no, please explain <input checked="" type="checkbox"/> YES <input type="checkbox"/>		

9. Is the applicant (individual or company) a U.S. National or a U.S. based company? If no, give name of country ☒ YES ☐ NO

10. Is the applicant the original owner? ☒ YES ☐ NO If no, please answer one of the following:

a. If the original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. National(s)?

☒ YES ☐ NO If no, give name of country

b. If the original rights to variety were owned by a company(ies), is (are) the original owner(s) a U.S. based company?

☒ YES ☐ NO If no, give name of country

11. Additional explanation on ownership (If needed, use the reverse for extra space):

'Coda' is a soft white winter club wheat developed by the USDA-ARS, Pullman, WA in cooperation with the Agriculture Research Center, Pullman, WA; the Idaho Agriculture Experiment Station, Moscow, ID., the Oregon Agriculture Experiment Station, Corvallis, OR and released in 1998.

## PLEASE NOTE:

Plant variety protection can only be afforded to the owners (not licensees) who meet the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed the final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definitions.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 6 minutes per response, including the time for reviewing the instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, or marital or family status. (Not all prohibited bases apply to all programs). Persons with disabilities who require alternative means for communication of program information (braille, large print, audiotape, etc.) should contact the USDA's TARGET Center at 202-720-2600 (voice and TDD). To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14<sup>th</sup> and Independence Avenue, SW, Washington, D.C. 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

### ASSIGNMENT

WHEREAS, we, **Northwest Plant Breeding Company** ("NPB") and its parent company, subsidiaries and affiliates with offices at 2001 Country Club Road, Pullman, WA 99163, have invented certain new and useful improvements in wheat improvement, specifically a Coda type club wheat cultivar named Experimental NPBCD001 "Mel", for which an application for a Plant Variety Protection Certificate was filed on December 19, 2003 with the U.S. Plant Variety Protection Office, assigned application no. 200400052; a waxy hard white spring wheat cultivar with an experimental designation "HWSW96005-1-4b tall"; and, a waxy hard white spring wheat cultivar with an experimental designation "HWSW96005-1-4b short", said cultivars are identified in Exhibit A, attached hereto and made a part hereof. A copy of Plant Variety Protection Application no. 200400052 is attached hereto as Exhibit A-1 and made a part hereof.

WHEREAS, **General Mills Operations, Inc.** ("Assignee"), a corporation organized and existing under the laws of the State of Delaware, and having its principal offices at Number One General Mills Boulevard, Minneapolis, MN 55426 is desirous of acquiring the entire right, title and interest in and to said cultivars, said application and in, to and under any and all Plant Variety Protection Certificate(s) to be obtained therefor;

NOW, THEREFORE, for and in consideration of One Dollar (\$1.00) and other good and valuable consideration to us in hand paid by said Assignee, the receipt of which is hereby acknowledged, we have sold, assigned and transferred, and by these presents do hereby sell, assign and transfer unto the said Assignee, its successors and assigns, our entire right, title and interest in and to said inventions, said cultivars, said Plant Variety Protection Application, all applications claiming priority to said Plant Variety Protection Application including all applications foreign and domestic, that may or shall issue, including Breeder's Rights Certificates arising under the Union Internationale Pour La Protection Des Obentions Vegetales (UPOV Convention), and we do hereby authorize and request the Commissioner of the Plant Variety Protection Office to issue said Plant Variety Protection Certificate to the above mentioned Assignee in accordance herewith.

We further authorize said Assignee, its successors and assigns, or anyone it may properly designate, to apply for said Plant Variety Protection Certificate, in its own name if desired, in any and all foreign countries, and additionally to claim the filing date of said United States application and/or otherwise take advantage of the provisions of the UPOV Convention.

Furthermore, we shall submit to Assignee all data collected during the development of said cultivars referenced in Exhibit A, including but not limited to all pathology, entomology, agronomic, and quality related data.



Upon said consideration we do hereby covenant and agree with the said Assignee, its successors and assigns, that we will not execute in writing or do any act whatsoever conflicting with these presents, and that we or our executors or administrators will at any time upon request, without further or additional consideration, but at the expense of the said Assignee, its successors and assigns, execute such additional writings and do such additional acts as said Assignee, its successors and assigns, may deem necessary or desirable to perfect the Assignee's enjoyment of this grant, and render all necessary assistance in making application for and obtaining any Plant Variety Protection Certificate, or of any and all foreign countries on said cultivars, and in enforcing any rights occurring as a result of such applications, by giving testimony in any proceedings or transactions involving such applications or patents. If we, or our executors or administrators are unable or unwilling to execute said additional writings, we hereby designate the Assignee as our agent with the limited power to execute said additional writings in our names.

Assignee currently possesses foundation, registered and certified seed varieties that were given to Assignee to conduct research and promote the sale of such seed varieties. Other than the seed varieties that are being transferred to Assignee and are identified on Exhibit A, Assignee shall return all NPB seed currently in its possession. We agree to pay Assignee for all costs associated with the shipment of all seed varieties to us identified on Exhibit B. The seed varieties that shall be returned by Assignee, and any payment that will be made by us for the return of such varieties, are specifically identified on Exhibit B hereof. We hereby represent to Assignee that in the event we do not pay for the costs identified on Exhibit B, or if we do not take delivery of the seed varieties, for any reason, Assignee may sell the seed with no royalties due or destroy the seed varieties in any manner.

IN WITNESS WHEREOF, we have hereunto set our hands and affixed our seal as dated below.

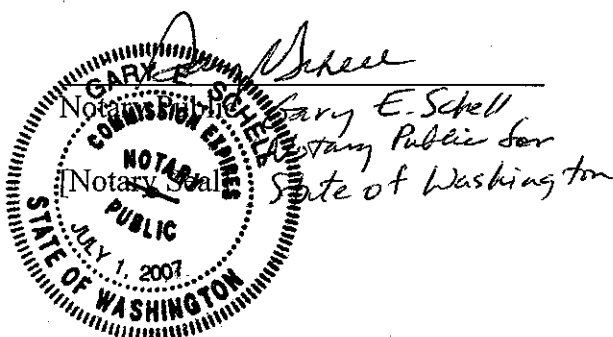
Date: February 17, 2005

Northwest Plant Breeding, Inc.

Name, Title

Timothy M. Coughney - President

Subscribed and sworn to before me  
this 17<sup>th</sup> day of February, 2004. 2005



Attorney Docket No.:

General Mills Operations, Inc.

Date: 3-1-05

[Signature] VICE PRESIDENT  
Name, Title  
RONALD D. OLSON

Subscribed and sworn to before me  
this 1 day of MARCH, 2004, 2005

[Signature]  
Notary Public

[Notary Seal]

